Fig.1

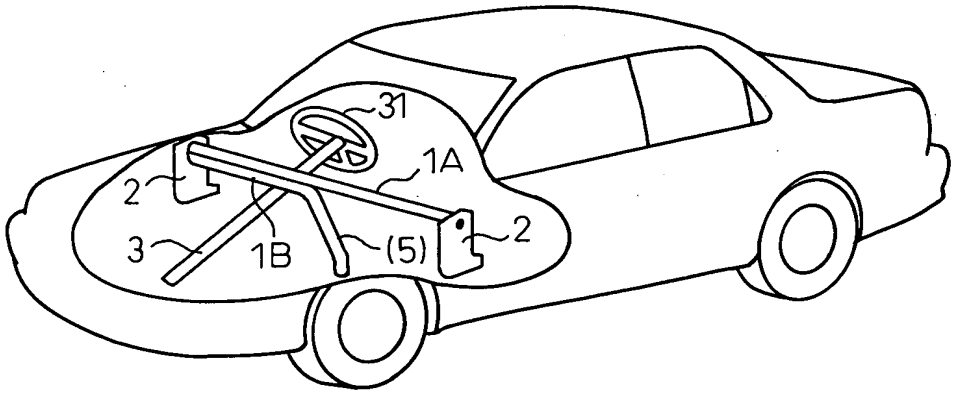
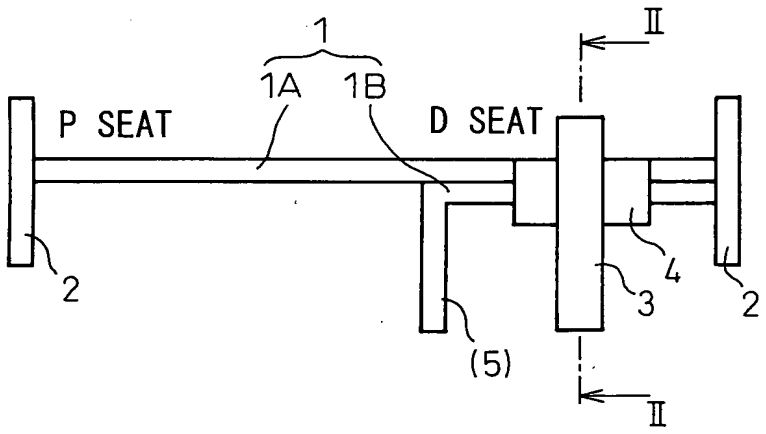
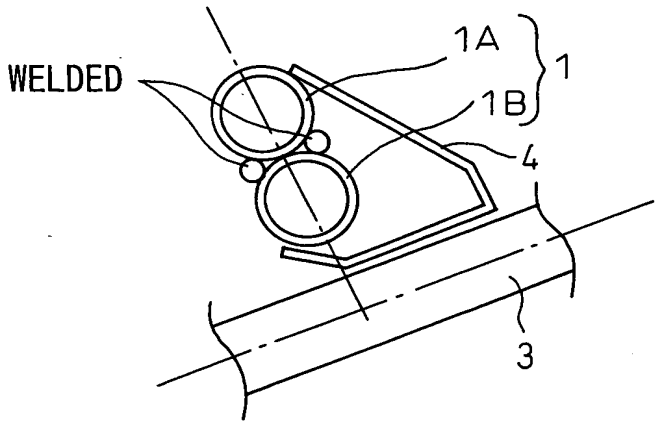


Fig.2





SECTIONAL VIEW ALONG II - II

Fig.3

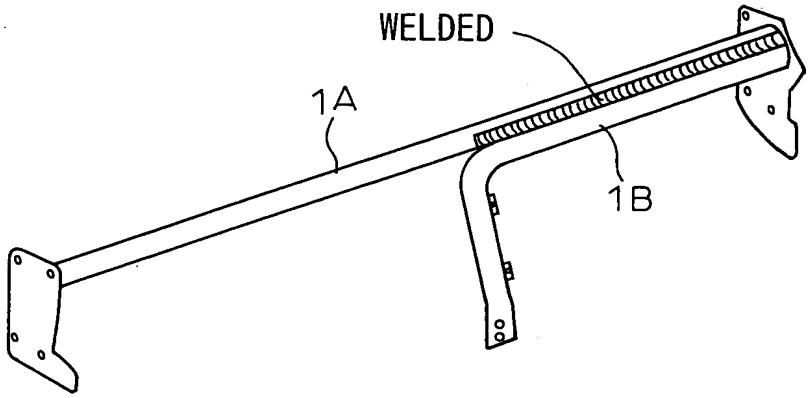


Fig.4

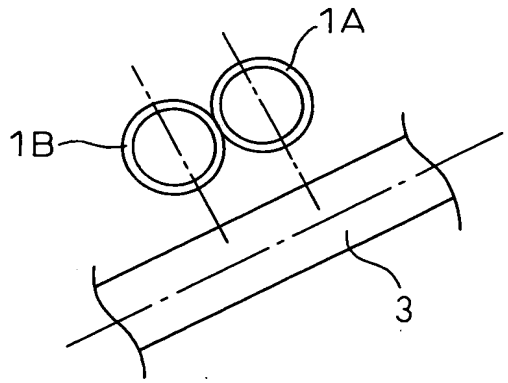
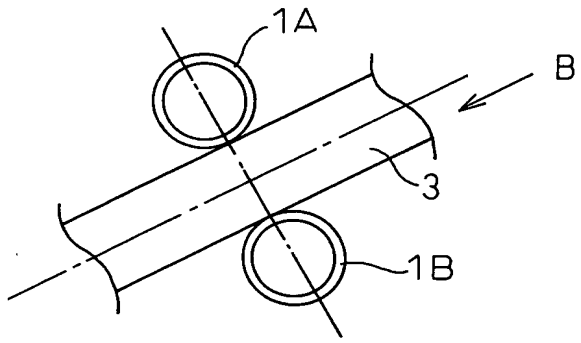
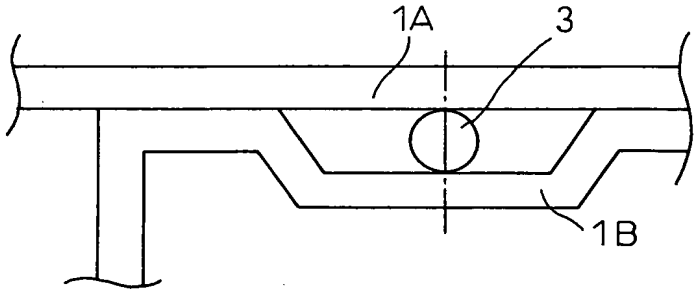


Fig.5





VIEW ALONG ARROW B

Fig.6

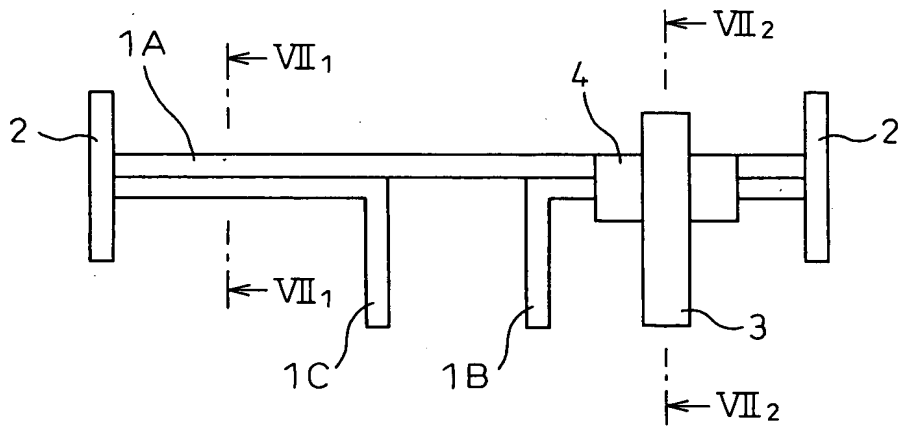


Fig.7A

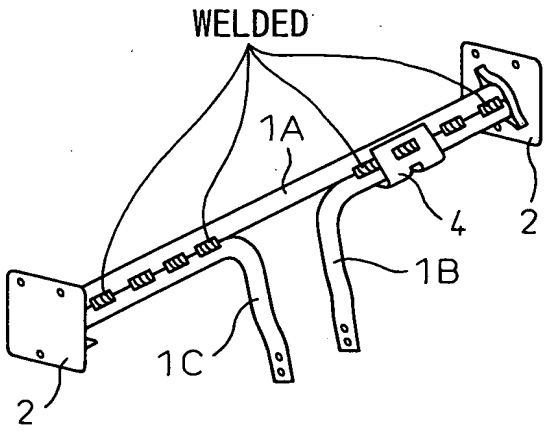
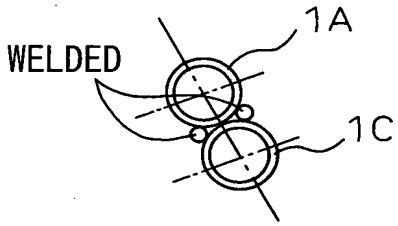
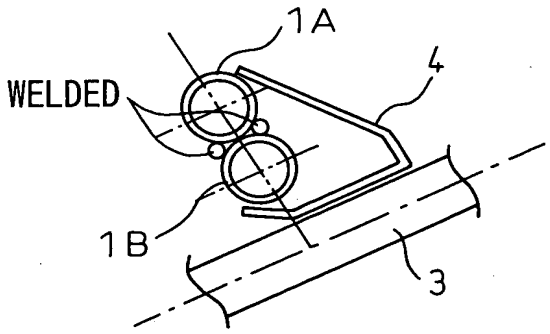


Fig.7B



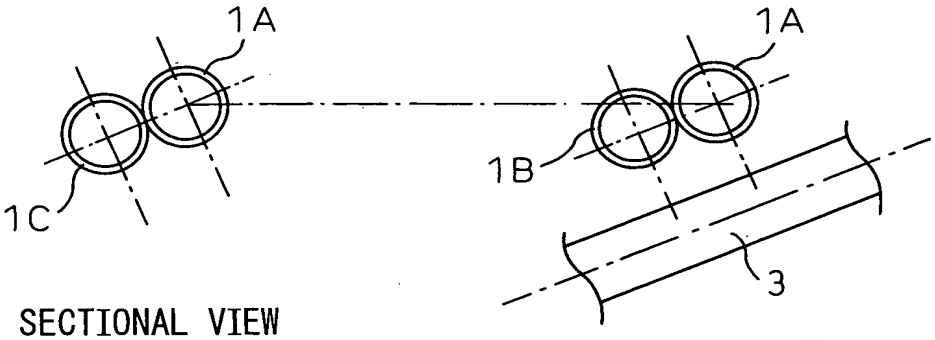
SECTIONAL VIEW ALONG VII_1-VII_1

Fig.7C



SECTIONAL VIEW ALONG VII_2-VII_2

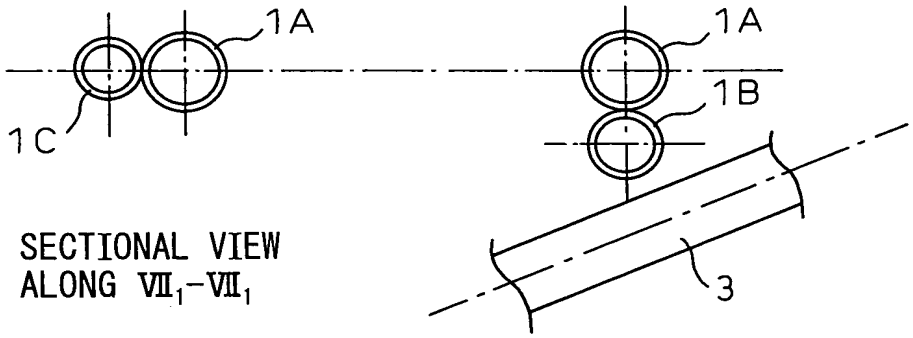
Fig.8A



SECTIONAL VIEW ALONG VII_1–VII_1

SECTIONAL VIEW ALONG VII_2–VII_2

Fig.8B



SECTIONAL VIEW ALONG VII_1–VII_1

SECTIONAL VIEW ALONG VII_2–VII_2

Fig.9

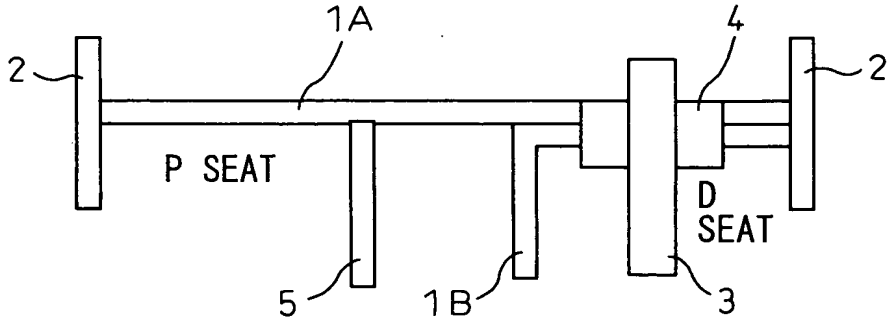
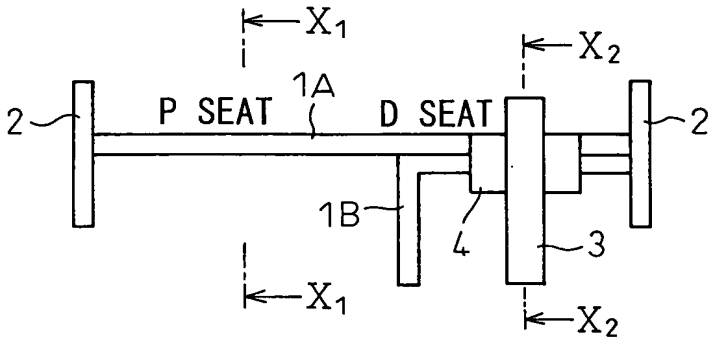
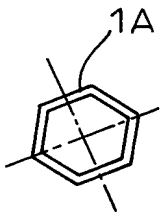
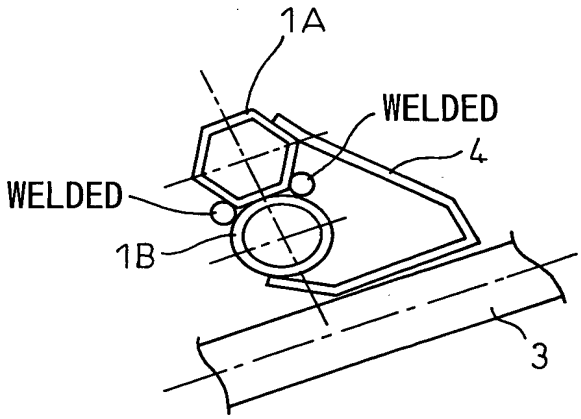


Fig.10



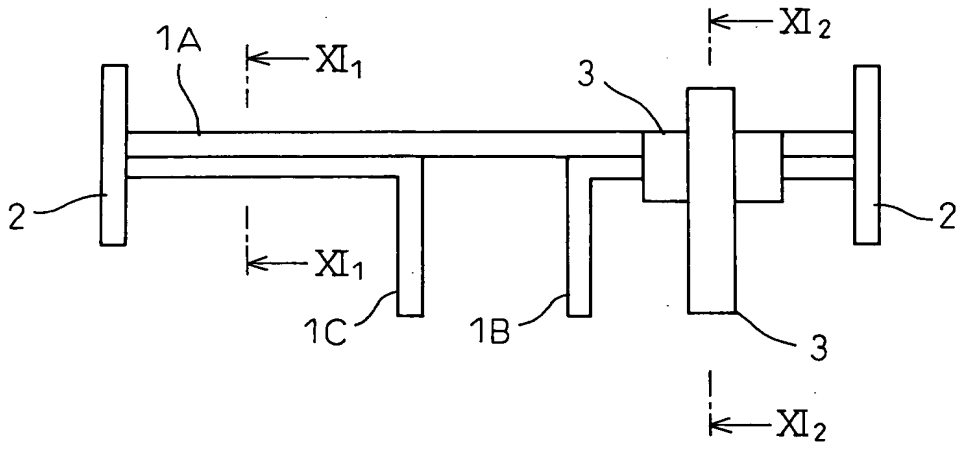


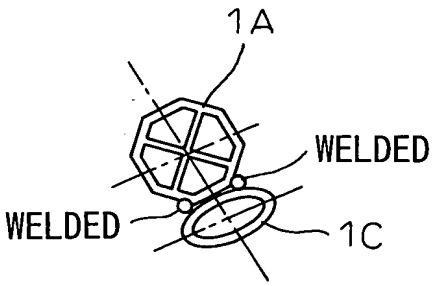
SECTIONAL VIEW
ALONG X_1–X_1



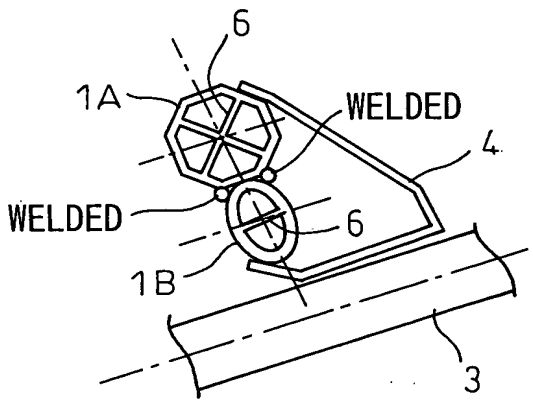
SECTIONAL VIEW
ALONG X_2–X_2

Fig.11





SECTIONAL VIEW
ALONG XI_1-XI_1



SECTIONAL VIEW
ALONG XI_2-XI_2

Fig.12A

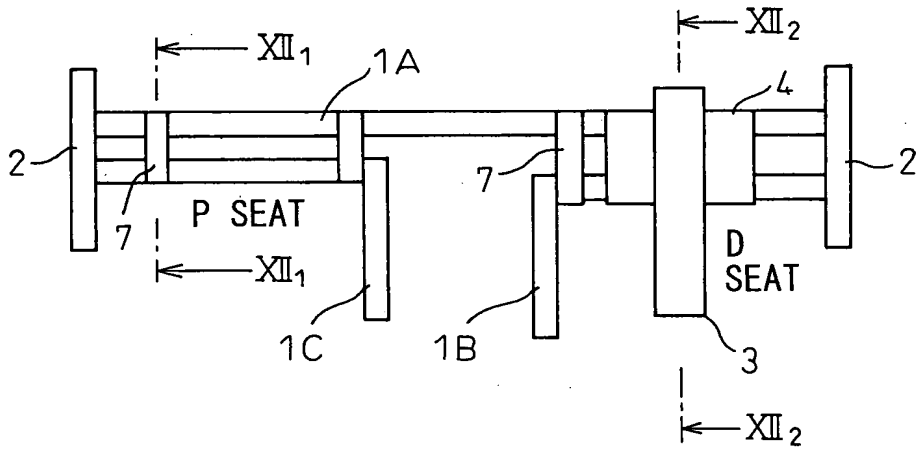


Fig.12B

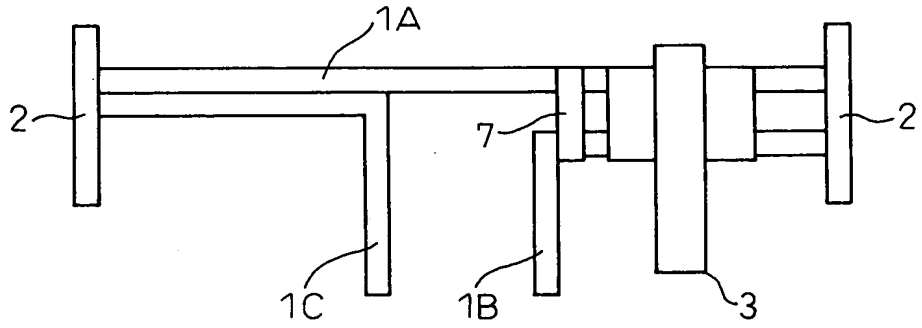
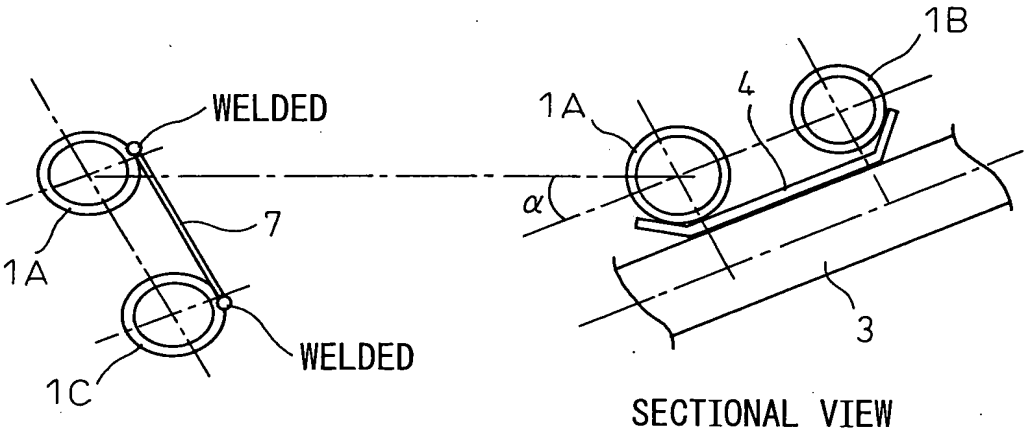


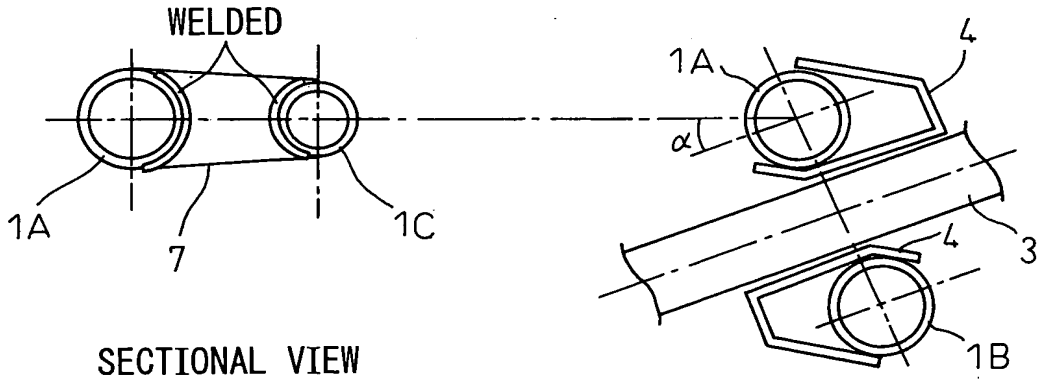
Fig.13A



SECTIONAL VIEW
ALONG XII_1-XII_1

SECTIONAL VIEW
ALONG XII_2-XII_2

Fig.13B



SECTIONAL VIEW
ALONG XII_1-XII_1

SECTIONAL VIEW
ALONG XII_2-XII_2

Fig.14

・WEIGHT AND AREA COMPARISON [mm]

	CONVENTIONAL CCB	2-PIPE CCB	3-PIPE CCB
CCB	Fe PIPE OF Φ54, t1.6	Fe PIPE OF Φ38.1, t1.2	Fe PIPE OF Φ38.1, t1.0
BRACE	t 1.2	-	-

<WEIGHT EFFICIENCY> [kg]

WEIGHT	CONVENTIONAL CCB	2-PIPE CCB	3-PIPE CCB
CCB	2.80	1.48	1.25
BRACE	0.47	0.94	1.50
SUM	3.27	2.42	2.75

*WEIGHT CALCULATED FROM 3D MODEL.
BRACE WEIGHT OF 2- AND 3-PIPE CCBs
REPRESENTED BY L-SHAPED LOWER CCB WEIGHT

<SECTIONAL AREA> [mm²]

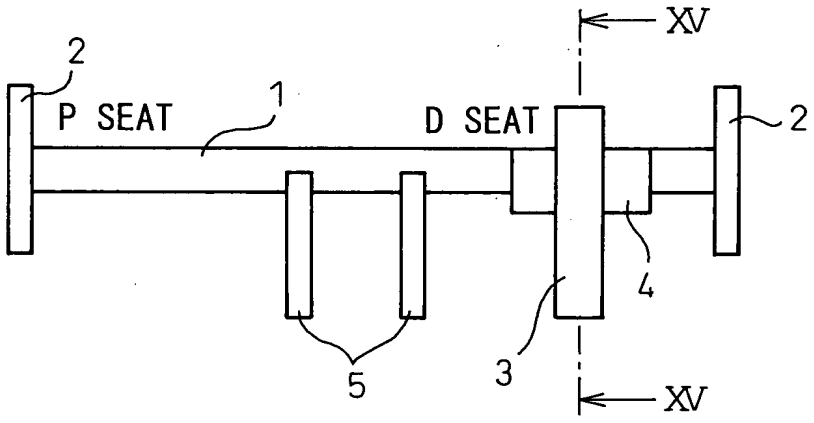
SECTIONAL AREA	CONVENTIONAL CCB	2-PIPE CCB	3-PIPE CCB
CENTRAL PORTION	9,161	4,560	←
D SEAT PORTION	9,161	9,120	←
P SEAT PORTION	9,161	4,560	9,120

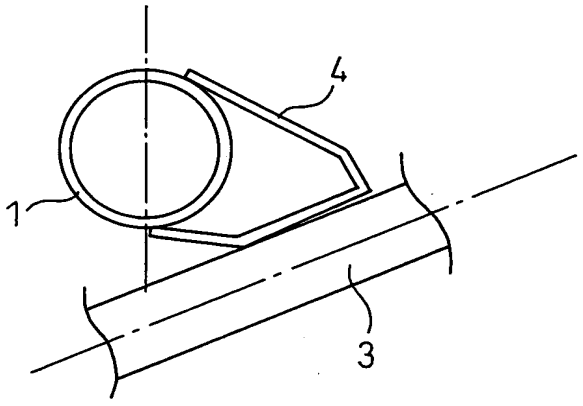
・COMPARISON OF DEFORMATION STRENGTH ANALYSIS
(REACTION AGAINST CCB 20mm INDICATED BY INDEX)

	CONVENTIONAL CCB	2-PIPE CCB	3-PIPE CCB
D SEAT PORTION	100	100	105
P SEAT PORTION	100	55	105

Fig.15

PRIOR ART





SECTION ALONG XV-XV